

ABSTRACT

EFFECT OF DRUG:POLYMER RATIO ON THE CHARACTERISTIC OF METFORMIN HCl-ALGINATE MICROSPHERE

(Prepared By Iontropic Gelation Method Using Aerosolisation Technique)

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This study investigated the effect of drug:polymer ratio on the characteristic of metformin HCl-alginate microsphere. Metformin HCl-alginate microsphere were made by ionotropic gelation method with aerosolisation technique using Na-alginate as polymer and CaCl_2 as cross linker. Microsphere formed was resuspended into the solution of lyoptotectant maltodextrin and was dried using freeze-dryer.

The result of the microspheres evaluation included DTA, FT-IR, SEM particle size distribution using optical microscopy, drug loading (DL), entrapment efficiency (EE), and yield. The microspheres size showed the diameter size of particles were below 5 μm . The result of DL formula F1, F2 and F3 were $3,08 \pm 0,21$; $3,34 \pm 0,28$; and $3,99 \pm 0,19$. The result of EE formula F1, F2 and F3 were $6,70 \pm 0,20$; $9,66 \pm 0,42$; and $13,63 \pm 0,21$. The result of yield formula F1, F2 and F3 were $47,69 \pm 6,33$; $58,91 \pm 3,30$; and $65,46 \pm 5,72$.

The result of the DL, EE and yield assay of the drug:polymer ratio influenced by the increasing of alginate concentration significantly to the entire value of EE, F1 with F2 and F2 with F3 on DL value, F1 with F2 and F1 with F3 on yield value.

Keywords : metformin HCl-alginate microspheres, drug:polymer ratio, characteristic microspheres; drug loading; entrapment efficiency; yield